September 3, 2014

Max Lissak

Site: 9032 116th Ave NE
Kirkland WA 98033

Dear Mr. Lissak:

Thank you for requesting my services. On August 18th, I visited the site located at 9032 116th Ave NE in Kirkland to perform a Visual Risk Assessment (VRA) for all significant* trees growing on the property. The information gathered is included in this report is necessary to prepare a Tree Retention Plan required by the City of Kirkland prior to the site development.

Also included are the City of Kirklandôs Tree Protection Specifications and Fencing Detail, necessary for submittal.

In summary:

- The site has thirty-nine (39) significant trees* with a total of 244.5 Tree credits
- Sixteen (16) trees are not viable and should be removed
- Eight (8) are proposed to be removed for site improvements
- Fifteen (15) trees will be retained for 124.5 Tree credits
- Based on the City of Kirklandôs tree density requirement of 30 tree credits/acre this 26,305 square foot lot requires 18 tree credits
- There is no required tree mitigation
- Limits of disturbance are noted on the Tree Inventory Spreadsheet and are specific to each tree based on species, tolerance to construction and site conditions.

I have included a detailed report of my findings. If you have any questions please call me. I can be reached on my cell phone: 425.890.3808 or by email: sprince202@aol.com.

Warm regards,

Susan Prince
Creative Landscape Solutions
ISA Certified Arborist: PN #1418A
TRACE Certified Arborist: #418
17518 NE 119th Way
Redmond, WA 98052

* Per city of Kirkland Municipal Code, a significant tree is one whose Diameter at Breast Height (DBH) is 6ò or greater

Assignment
I was contacted by Max Lissak and asked to perform a Visual Risk Assessment, complete a Tree Protection Plan for the trees growing on the site identified above as part of a preliminary request to Shortplat.

Personal qualifications, scope of work and methodology
My examination was limited to a visual one, and did not involve any root excavation, trunk or limb coring, or any soil testing. To evaluate the trees and prepare the report, I drew on my formal college education in botany, preparation and training used to obtain my ISA certification in addition to my certification as a Tree Risk Assessor. I have been an ISA Certified Arborist for over fifteen years and have been TRACE/TRAQ certified for four years.

I followed protocol delineated by the International Society of Arboriculture (ISA) for Visual Risk Assessment (VRA). By doing so, I am examining each tree independently as well as collectively as groups or stands of trees provide stability and can lower risk of independent tree failure. This scientific process examines tree health (e.g. size, vigor, insect and disease process) as well as site conditions (soil moisture and composition, amount of impervious surfaces surrounding the tree etc.)

Introduction:
Identifying and managing the risks associated with trees is still largely a subjective process. Since the exact nature of tree failures remains largely unknown, our ability as scientists and arborists to predict which trees will fail and in what fashion remains limited. As currently practiced, the science of hazard tree evaluation involves examining a tree for structural defects, including genetic problems, those caused by the local environmental that the tree grows in and those attributed to man (pruning etc.).

The assessment process involves evaluating three components: 1) a tree with the potential to fail, 2) an environment that may contribute to that failure, and 3) a person or object that would be injured or damaged (the target). By definition a defective tree cannot be considered hazardous without the presence of a target.
All trees have a finite life-span though it is not pre-programmed internally in the same manner as annual plantings. As trees age they are less able to compartmentalize structural damage following injury from insects, disease or pruning. Trees in urban settings have a shorter life span than trees grown in an undisturbed habitat.

Different species of trees grow differently. Evergreen trees have a ñreputationò of growing slowly and defensively. These trees allocate a high proportion of their resources to defending themselves from pathogens, parasites and wounds. As a rule, trees with this type of growth tend to be long lived. Though like all other living things, they have a fairly predictable life span. Examples of this type of tree include the northwest *Pseudotsuga menziesii* - Douglas fir, and *Thuja plicata* - Western red cedar.

Deciduous trees are trees that annually shed leaves or needles. These trees have a tendency to grow quickly and try to ñoutgrowò problems associated with insects, disease and wounds. They allocate a relatively small portion of their internal resources to defense and rely instead upon an ability to grow more quickly than the pathogens which infect them. However, as these trees age, their growth rate declines and the normal problems associated with decay begins to catch up and compromise the treeôs structural integrity. Examples of this type of tree include *Salix, Populus* and *Alnus.*

Knowledge of the growth and failure patterns of individual tree species is critical to effective hazard analysis. Species vary widely in their rates of failure. The hazard tree evaluation rating system used by most arborists was developed by the Colorado Urban Forest Council and recognizes this variation in species failure and includes a species component as part of the overall hazard evaluation.

Site Observations:
The site is located west of I405 and just north of 85th in Kirkland. The site is fairly flat. There is a home with a driveway that accesses 116th Ave NE. The rear of the home is undeveloped with a potential access on Slater Ave NE.

Method's used to determine tree location and tree health:
Trees were identified previously by numbered aluminum tags attached to the western side of the tree. All of the trees on site were examined using the Matheny and Clark[1] criteria for determining the potential hazard of trees in an urban environment as well as the Tree Risk Assessment in Urban Areas and The Urban/Rural Interface by Julian Dunster[2].

The tree diameter was measured using an aluminum ñdiameter tape measure.òTree canopy was approximately by ñpacing offòthe area.

Spreadsheet Legend:
Tree tag #:é é ..Numbered aluminum tags attached to the trees in the field*[1]

Survey #:é é ..Numbers assigned to trees from the survey company

DBH:é é .. Diameter of the tree measured at 54òabove grade

Dripline Radius: é é ..Measurement in feet of the tree canopy from tree trunk to outermost branch tip

Health: é é ..A measurement of overall tree vigor and vitality rated as excellent, good, fair or poor based on an assessment of crown density, leaf color and size, active callusing, shoot growth rate, extent of crown dieback, cambium layer health, and tree age

- Excellent: Tree is an ideal specimen for the species with no obvious flaws
- Good: Tree has minimal structural or situational defects
- OK: Tree has minimal structural AND situational defects
- Fair: Tree has structural or health issues that predispose it to failure if further stressed
- Poor: Tree has significant structural and/or health issues. It is exempt from total tree count.

Defects/Concerns: é é ..a measure of the treeôs structural stability and failure potential and rated as good, fair or poor based on assessment of specific structural features, eg., decay, conks, co-dominant trunks, included bark, abnormal lean, one-sided canopy, history of failure, prior construction impact, pruning history, etc.

Proposed action:

- Retain
- Remove due to viability
- Remove due to planned development (tree is otherwise healthy)

Limits of disturbance:é é ..The area surrounding the tree that defines the area that surrounds the trunk that cannot be encroached upon during construction. This may be a multiple of the trunk diameter (1 -1.5 times the trunk diameter converted to feet.) or it may be related to the width of the canopy. It is always determined by tree species and environment and is up to the discretion of the ISA Certified Arborist to determine

Tree Density Requirement:é é ..30 tree credits per acre, not including trees in the city easement (street trees)

Tree Density for Existing Significant Trees
(Credits per minimum diameter
– DBH)

DBH	Tree Credits	DBH	Tree Credits	DBH	Tree Credits
3 ï 5"	0.5				
6 ï 10"	1	24"	8	38"	15
12"	2	26"	9	40"	16
14"	3	28"	10	42"	17
16"	4	30"	11	44"	18
18"	5	32"	12	46"	19
20"	6	34"	13	48"	20
22"	7	36"	14	50"	21

Example: a 7,200-square-foot lot would need five (5) tree credits (7,200/43,560 = 0.165 X 30 = (4.9) or five (5)). The density for the lot could be met with one (1) existing 16-inch tree and one (1) existing 6-inch tree on site.

Species ID:é é ..Spreadsheet contains common names of trees which correspond to scientific names as follows:

- Apple: *Malus sp.*
- American sycamore: *Plantanus occidentalis*
- Austrian pine: *Pinus nigra*
- Bigleaf maple: *Acer macrophyllum*
- Birch: *Betula nigra*
- Bitter Cherry: *Prunus emarginata*
- Blue atlas cedar: *Cedrus atlantica 'Glauca'*
- Cedar: *Thuja plicata*
- Cherry: *Prunus sp.*
- Dawn redwood: *Chamaecyparis nootkatensis*
- Deodora cedar: *Cedrus deodara*
- Colorado blue spruce: *Picea pungens*
- Cottonwood*: Populus trichocarpa*
- Dogwood*: Cornus nuttallii*
- Douglas fir: *Pseudotsuga menziesii*
- English laurel: *Prunus laurocerasus*
- Filbert: *Corylus avellana var.*
- Grand fir: *Abies grandis*
- Hemlock: *Tsuga hetrophylla*
- Holly: *Ilex aquifolium*
- Japanese maple: *Acer palmatum*
- Leylandii cypress: *Cupressocyparis leylandii*
- Lodgepole pine*: Pinus contorta*
- Mountain ash: *Sorbus americana*
- Nobel fir: *Abies procera*
- Pear: *Pyrus sp.*
- Plum: *Prunus*
- Red Alder: *Alnus rubra*
- Red maple: *Acer rubrum*
- Walnut: *Juglans sp.*
- Western red cedar: *Thuja plicata*
- Weeping Alaska cedar*: Metasequoia glyptostrobides*
- White fir*: Abies concolor*
- White pine*: Pinus strobus*

Specific Tree Observations:

#	Tag #	Species	DBH (inches)	Adj. DBH (inches)	Radius Dripline (feet)	Comments	Health	Proposed Action			Limits of Disturbance	Tree Credits
								Retain	Remove	Remove for Improvements		
1	1	*Bitter cherry*	7.5	7.5	12ô	Gummosis, dead wood	Poor		X		**7.5**	1
2	2	*Western red cedar*	15	15	8ô	Topped, power line	Fair		X		**15**	3.5
3	3	*Douglas fir*	12	12	8ô	Topped, Power line, abnormal, popping, sloughing bark	Poor		X		**12**	2
4	4	*Douglas fir*	14	14	8ô	Topped, power line, mostly dead	Poor		X		**14**	3
5	5	*Douglas fir*	12	12	8ô	Topped, power line, mostly dead	Poor		X		**12**	2
6	6	*Western red cedar*	8	8	8	Topped, power line	Fair		X		**8**	1
7	7	*Douglas fir*	8	8	8	Topped, power line	Fair		X		**8**	1
8	8	*Bitter cherry*	8/8	11	9	Topped, typical of species	Fair		X		**11**	1.5
9	9	*Madrona*	8	8	15	Blight	OK			X	**8**	1
10	10	*Douglas fir*	6	6	6	Sap, abnormal bark	Fair			X	**6**	1
11	17	*Douglas fir*	12/8	14	10	Topped, few live branches, power line	Poor		X		**14**	3
12	11	*Madrona*	10/14	17	12	Blight, co-dominant leader, typical of species	Good			X	**17**	4.5
13	500	*Cottonwood*	24	24	15	Typical of species, self-corrected ñSòshaped trunk	OK	X			**15'**	8
14	499	*Douglas fir*	35	35	18	Probable crack at 10ô free flowing sap, self-corrected lean, exposed roots	Good	X			**18'**	13.5
15	498	*Western red cedar*	26	26	18	Decay, carpenter ants, previous top failure	Good			X	**26**	9
16	497	*Cottonwood*	30	30	16	Typical of species, large, exposed roots, some > 14òin diameter	Good	X			**16'**	11
17	496	*Western red cedar*	15	15	12	Thin canopy	Good	X			**12'**	3.5
18	495	*Cottonwood*	15	15	15	Topped, covered with ivy	Fair	X			**15'**	3.5
19	494	*Cottonwood*	60	60	18	Topped, covered with ivy	Fair	X			**60'**	26

#	Tag #	Species	DBH (inches)	Adj. DBH (inches)	Radius Dripline (feet)	Comments	Health	Proposed Action			Limits of Disturbance	Tree Credits
								Retain	Remove	Remove for Improvements		
20	493	*Bitter cherry*	6	6	8	No defects	Excellent	**X**			**8'**	1
21	492	*Western red cedar*	19	19	12	Hanger, dead wood, then unbalanced canopy	OK	**X**			**12'**	5.5
22	491	*Bitter cherry*	12	12	16	Ropes of ivy, typical of species	Fair	**X**			**12'**	2
23	490	*Bigleaf maple*	36/24	43	25	Typical of species, small scaffold with dead wood	Excellent	**X**			**25'**	11
24	489	*Western red cedar*	32/19/35	51	20	Thin canopy, asymmetric crown, carpenter ants, decay, no-self-corrected lean to west, previous top failure, dead wood	Fair			**X**	**20'**	21
25	488	*Western red cedar*	32	32	16	Healthy canopy, trunk at root crown	Good			**X**	**32**	12
26	487	*Douglas fir*	42	42	18	Large bulge at 7ǫ self-corrected lean, carpenter ants, some shedding bark	OK			**X**	**18'**	17
27	486	*Western red cedar*	17	17	15	Self-corrected lean, thin canopy, branches wrapped and rubbing #487	OK			**X**	**15'**	4.5
28	485	*Douglas fir*	28	28	15	Ivy, some abnormal shedding bark, dead wood	OK	**X**			**15'**	10
29	484	*Western red cedar*	14	14	14	Typical of suppressed canopy tree, thin branching	Good	**X**			**14'**	3
30	483	*Douglas fir*	32	32	15	Abnormal bark, dead wood, broken branches, hanger	OK	**X**			**15'**	12
31	482	*Western red cedar*	11	11	12	Typical thin foliage of suppressed canopy tree	OK	**X**			**12'**	1.5
32	481	*Bitter cherry*	11	11	12	Typical of species, decay@ root crown, self-corrected lean	Poor		**X**		**12**	1.5
33	480	*Western red cedar*	16	16	10	Growing as a nurse tree, dying	Poor		**X**		**16**	4
34	479	*Western red cedar*	17	17	10	Thin canopy, suppressed tree	OK			**X**	**17**	4.5
35	478	*Bigleaf maple*	26	26	16	Typical of species	Good			**X**	**26**	9

#	Tag #	Species	DBH (inches)	Adj. DBH (inches)	Radius Dripline (feet)	Comments	Health	Proposed Action			Limits of Disturbance	Tree Credits
								Retain	Remove	Remove for Improvements		
36	477	*Douglas fir*	32	32	15	Covered in ivy, dead wood, broken branches, exposed roots	OK			**X**	**32**	12
37	476	*Douglas fir*	30	30	15	Previous top failure, broken branches, dead wood, ivy,	poor		**X**		**30**	11
38	475	*Bigleaf maple*	12	12	16	Typical of species, decay in scaffold	OK	**X**			**16'**	2
39	474	*Horse chestnut*	6	6	3	Crocked thin trunk, little canopy	Poor		**X**		**6**	1
		Total Tree Credits For Site										**244.5**
		Tree Credits removed for poor health (13 Trees)										**35.5**
		Tree Credits Proposed to Remove for site improvements (11 Trees)										**95.5**
		Total Retained Tree Credits										**113.5**
		Total required for site (26,305 X 30 / 43,560 = or Tree credits total)										**18**
		Required mitigation										**0**

[1]Determination of DBH of multi-trunked trees was determined by taking the square root of the sum of the measure of individual trunks squared

Off-site trees

#	Tag #	Species	DBH (inches)	Radius Dripline (feet)	Comments	Health	Proposed Action		Limit of Disturbance
							Retain	Remove	
1	35	*Western red cedar*	37ò	22ô	Some thinning from presumably drought stress	Excellent	**x**		**22'**

Site map: see attached

Discussion/Calculations/Conclusion:

Trees tagged 1-8 have grown under the power lines and have been topped for years. As a consequence of poor management practices they are rated fair to poor.

#1 is a 7.5òDBH Bitter cherry with severe gummosis and branch dieback. Trees numbered, 2 and 6 are western red cedars with 15òand 8òDBHøs respectively. They have been topped so often there is little living tissue in them. The remaining trees, 3, 4 ,5 and 7 are all Douglas firs with the following DBHøs: 12ò, 14ò, 12ò, and 8ò All have been topped and are not viable.

Trees # 9 (8òMadrona) and # 10 (6òDouglas fir) are in OK to fair health respectively they will need to be removed to driveway access. In addition to these two viable trees, two significant Western red cedars, #498 (26ò) and #488 (32ò) are proposed to be removed for driveway access. Tree # 486 is a 17òWestern red cedar that will likely need to be removed when the road is put in, as well as #487 a 42òDouglas fir.

Tree # 477 is a Douglas fir with a DBH of 32ò, it will need to be removed for site development on Lot 3. Tree # 478 is a bigleaf maple with a DBH of 26ò, it will need to be removed for building site lot 3 to be developed. Likewise # 479, a 17òwestern red cedar will need to be removed for Lot 3 building site.

Tree #489 is a multiple trunk Western red cedar with an adjusted DBH of 51 ñit is in fair condition with an asymmetric crown, carpenter ants, some decay, a non-self-corrected lean to the west and previous top failure. It will need to be removed to accommodate Lot 2.

Tree Protection
Tree protection fencing must remain at the limit of disturbance and tree protection specifications must be observed throughout all phases of construction. Fencing is the first item to be addressed prior to grading, and the last item to be removed after construction is completed.

The tree protection fencing can be placed in the dripline of #107 a Bigleaf maple to allow for excavation of the foundation. Likely some overhanging scaffolds will need to be removed or pruned as will. The excavation into the dripline of the trees must be supervised by an ISA Certified arborist and any roots larger than 3òshould be hand-cut and wrapped in damp burlap until the time that they can be covered in soil. Once the steps have cured, if there is any further construction, the fence should be moved back to the original position until the entire project is complete.

It is the responsibility of the developer of the site to ensure that these trees be provided adequate water during the development of this site as drought stress can have a greater impact on trees that have suffered from any excavation.

Tree Protection Specifications
Critical Root Zone and Fencing:
First, protect roots that lie in the path of construction. Approximately 90 to 95 percent of a tree's root system is in the top three feet of soil, and more than half is in the top one foot. Construction activities should be avoided in this area. Protect as much of the area beyond the tree's dripline as possible. Some healthy trees survive after losing half of their roots. However, other species are extremely sensitive to root damage even outside the dripline.
Do not disturb the Critical Root Zone (CRZ). The CRZ is defined by its "critical root radius." It is more accurate than the dripline for determining the CRZ of trees growing in forests or that have narrow growth habits. To calculate critical root radius, measure the tree's diameter (DBH) in inches, 4.5 feet above the ground. For each inch, allow for 1 to 1.5 feet of critical root radius. If a tree's DBH is ten inches, its critical root radius is 10 to 15 feet.

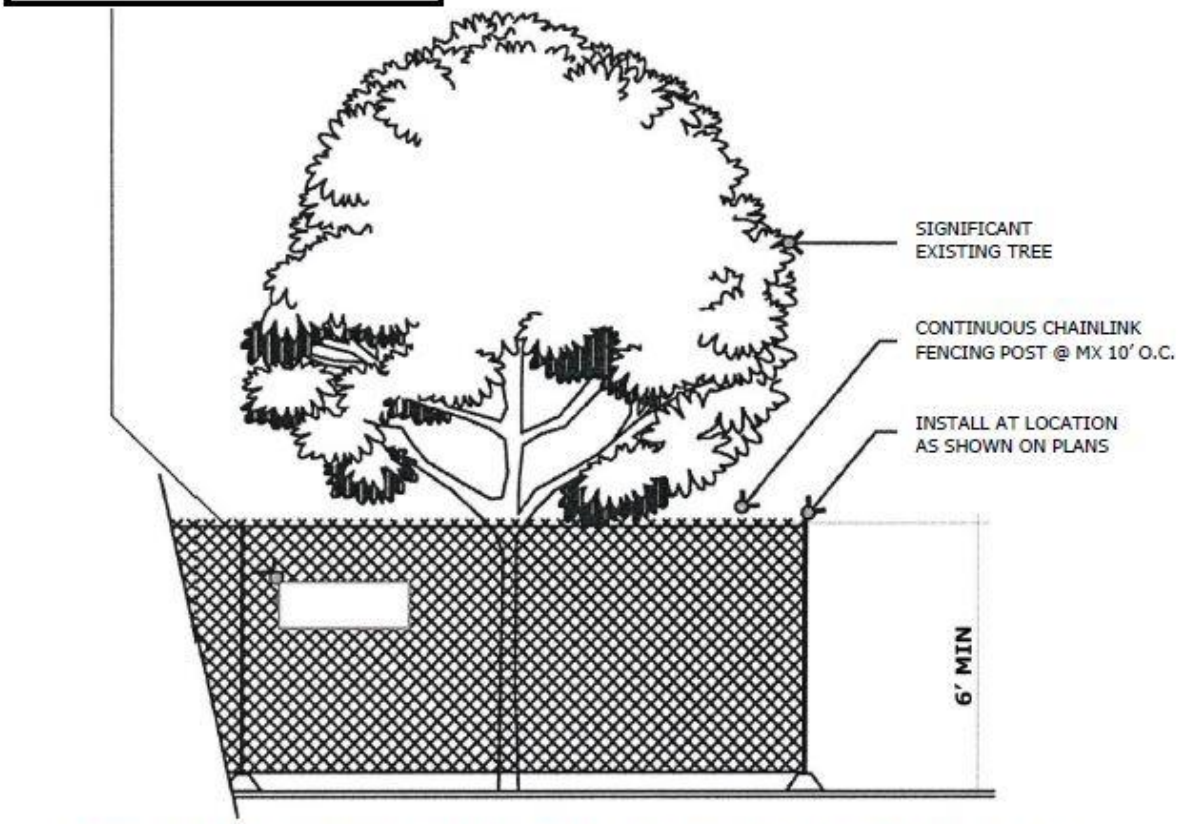
In addition to the CRZ, it is important to determine the Limits of Disturbance (LOD) for preserved trees. Generally this is approximates the CRZ however in previously excavated areas around the dripline the LOD may be smaller, or in the case of a tree situated on a slope the LOD may be larger. The determination of LOD is also subject to the particular tree species. Some tree species do better than others after root disturbance. Tree protection is advised throughout the duration of any construction activities whenever the critical root zone or leaf canopy many be encroached upon by such activities.

The Critical Root Zone (CRZ) or LOD should be protected with fencing adequate to hinder access to people vehicles and equipment. Fencing detail is provided. It should consist of continuous 4 ft high temporary chain-link fencing with posts sec at 10ôon center or polyethylene laminar safety fencing or similar. The fencing must contain fencing signage detailing that the tree protection area cannot be trespassed on.

Soil compaction is one of the most common killers of urban trees. Stockpiled materials, heavy machinery and excessive foot traffic damage soil structure and reduce soil pore space. The effected tree roots suffocate. When construction takes place close to the protected CRZ, cover the site with 4 inches of bark to reduce soil compaction

Tree Protection fencing must be erected prior to soil excavation, boring, grading or fill operations. It is erected at the LOD. If it is necessary to run utilities within the LOD, the utilities should be combined into one cut, as practical. Trenching is not allowed in the LOD. In these areas boring or tunneling techniques should be used. In the event that roots greater than 1òdiameter near the LOD are damaged or torn, it is necessary to hand trim them to a clean cut. Any roots that are exposed during construction should be covered with soil as soon as possible.

During drought conditions, trees must be adequately watered. Site should be visited regularly by a qualified ISA Certified Arborist to ensure the health of the trees. Tree protection fencing is the last item to be removed from the site after construction is completed. After construction has been completed, evaluate the remaining trees. Look for signs and symptoms of damage or stress. It may take several years for severe problems to appear.



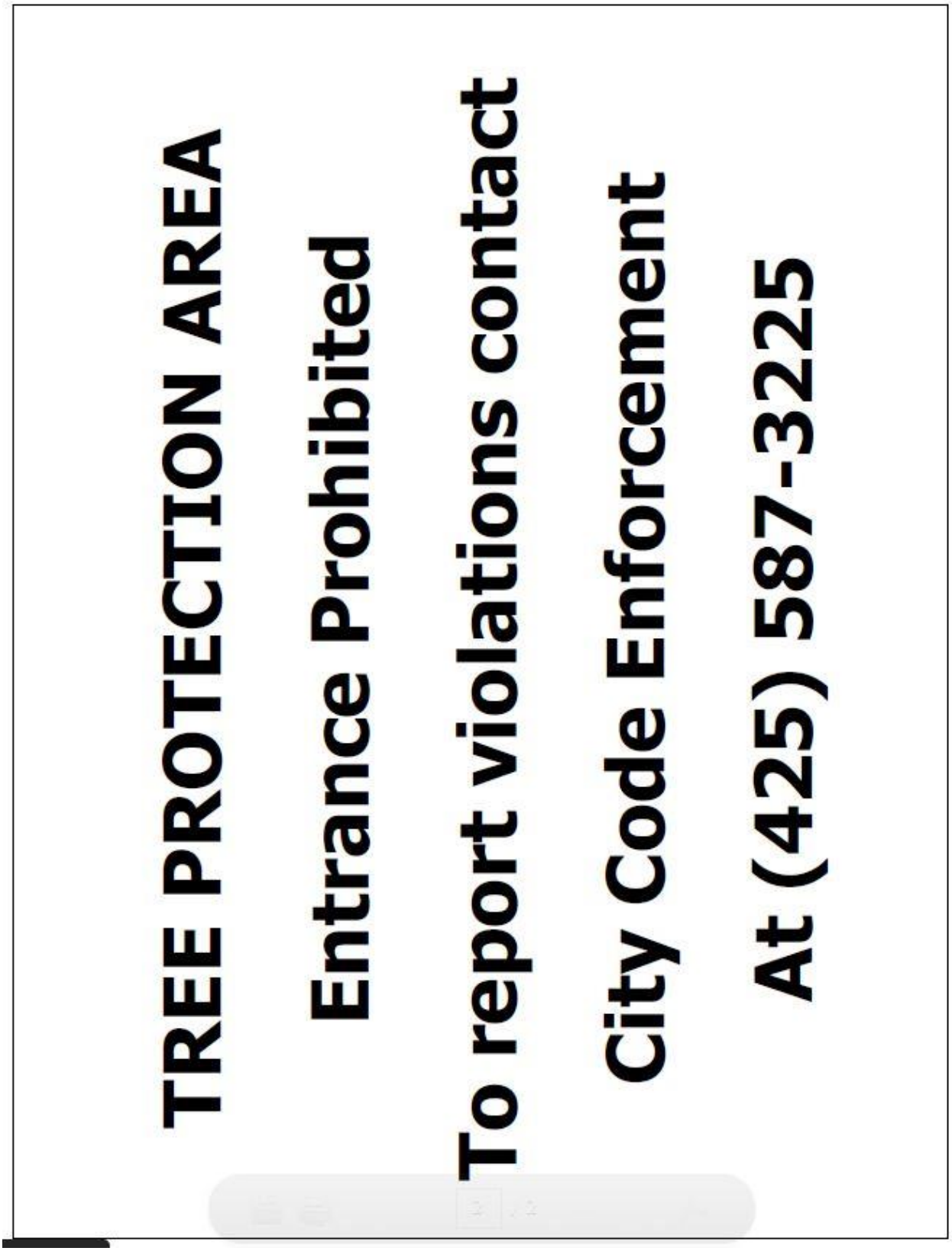
1. MINIMUM SIX (6) FOOT HIGH TEMPORARY CHAINLINK FENCE SHALL BE PLACED AT THE CRITICAL ROOT ZONE OR DESIGNATED LIMIT OF DISTURBANCE OF THE TREE TO BE SAVED. FENCE SHALL COMPLETELY ENCIRCLE TREE(S). INSTALL FENCE POSTS USING PIER BLOCK ONLY. AVOID POST OR STAKES INTO MAJOR ROOTS. MODIFICATIONS TO FENCING MATERIAL AND LOCATION MUST BE APPROVED BY PLANNING OFFICIAL.

2. TREATMENT OF ROOTS EXPOSED DURING CONSTRUCTION: FOR ROOTS OVER ONE (1) INCH DIAMETER DAMAGED DURING CONSTRUCTION, MAKE A CLEAN STRAIGHT CUT TO REMOVE DAMAGED PORTION OF ROOT. ALL EXPOSED ROOTS SHALL BE TEMPORARILY COVERED WITH DAMP BURLAP TO PREVENT DRYING AND COVERED WITH SOIL AS SOON AS POSSIBLE.

3. NO STOCKPILING OF MATERIALS, VEHICULAR TRAFFIC, OR STORAGE OF EQUIPMENT OR MACHINERY SHALL BE ALLOWED WITHIN THE LIMIT OF THE FENCING. FENCING SHALL NOT BE MOVED OR REMOVED UNLESS APPROVED BY THE CITY PLANNING OFFICIAL. WORK WITHIN PROTECTION FENCE SHALL BE DONE MANUALLY UNDER THE SUPERVISION OF THE ON-SITE ARBORIST AND WITH PRIOR APPROVAL BY THE CITY PLANNING OFFICIAL.

4. FENCING SIGNAGE AS DETAILED ABOVE MUST BE POSTED EVERY FIFTEEN (15) FEET ALONG THE FENCE.

TREE PROTECTION FENCING DETAIL
(for public and private trees)


TREE PROTECTION AREA
Entrance Prohibited
To report violations contact
City Code Enforcement
At (425) 587-3225

Assumptions and Limiting Conditions

1. Any legal description provided to the consultant/appraiser is assumed to be correct. Any titles and ownerships to any property are assumed to be good and marketable. No responsibility is assumed for matters legal in character. Any and all property is appraised or evaluated as thou free and clear, under responsible ownership and competent management.

2. It is assumed that any property is not in violation of any applicable codes, ordinances, statutes or other governmental regulations.

3. Care has been taken to obtain all information from reliable sources. All data has been verified insofar as possible; however, the consultant/appraiser can neither guarantee nor be responsible for the accuracy of information provided by others.

4. The consultant/appraiser shall not be required to give testimony or to attend court by reason of the report unless subsequent contractual arrangements are made including payment of an additional fee for such services as described in the fee schedule and contract of engagement.

5. Loss or alteration of any part of this report invalidates the entire report.

6. Possession of this report or a copy thereof does not imply right of publication or use for any purpose by any other than the person to whom it is addressed, without the prior expressed written or verbal consent of the consultant/appraiser.

7. Neither all nor any part of the contents of the report, nor copy thereof, shall be conveyed by anyone, including the client to the public through advertising, public relations, news, sales or other media, without the prior expressed written or verbal consent of the consultant/appraiser ï particularly as to value conclusions, identity of the consultant/appraiser, or any reference to any professional society or instate or to any initialed designation conferred upon the consultant/appraiser as stated in her qualification.

8. The report and any values expressed herein represent the opinion of the consultant/appraiser, and the consultantôs/appraiserôs fee is in no way contingent upon the reporting of a specified value, a stipulated result, the occurrence of subsequent event, nor upon any finding to be reported.

9. Sketches, diagrams, graphs and photographs in this report, being intended as visual aid, are not necessarily to scale and should not be construed as engineering or architectural reports or survey.

10. Unless expressed otherwise: 1) information contained in this report covers only those items that were examined and reflects the condition of those items at the time of inspection; and 2: the inspection is limited to visual examination of accessible items without dissection, excavation, probing or coring. There is not warranty or guarantee, expressed or implied, that problems or deficiencies of the plants or property in question may not arise in the future.